

## CLAIMS

What is claimed is:

1. A method of processing an image for display, said method comprising:
- 5 a) mapping an area of a display to a region of said image, said area operable to display a first color of a plurality of colors;
- b) based on the intensity of said first color in said region of said image, calculating an intensity value for said first color to be displayed in said area of said display, wherein said region comprises an intensity value for each of said
- 10 plurality of colors; and
- c) repeating a) - b) for additional areas of said display corresponding to additional regions of said image, mapping each area to its own region, wherein said image is processed.
- 15 2. A method as described in Claim 1, further comprising:
- d) displaying said processed image on said display, said display providing for control over individual sub-pixels, wherein each area of said output corresponds to a sub-pixel operable to display a color.
- 20 3. A method as described in Claim 1 wherein b) comprises:
- b1) averaging the intensity value of said first color over a plurality of regions neighboring said region of said image, wherein each of said areas maps to its own plurality of regions.

4. A method as described in Claim 3, wherein b) comprises:  
b1) based on the intensity of said first color in said plurality of regions of  
said image, calculating an intensity value for said first color;  
b2) calculating an error for said first color; and  
5 b3) propagating said error for said first color for processing further  
regions of said image.
5. A method as described in Claim 4, wherein b) further comprises using in  
b1) an error that was propagated when processing another area for said first  
10 color.
6. A method as described in Claim 1, wherein b) comprises:  
b1) based on the intensity of said first color in said region of said image,  
calculating an uncompensated intensity value for said first color;  
15 b2) calculating an error for each of the rest of said plurality of colors  
within said region,  
b3) storing said errors for said rest of said colors for processing further  
regions of said image; and  
b4) calculating a compensated intensity value for said area, based on  
20 said uncompensated intensity value and errors which were calculated for said  
first color when processing other image regions.
7. A method as described in Claim 1, wherein b) comprises:  
b1) using only information regarding the intensity of said first color to  
25 calculate the intensity of color to be displayed in said area.

8. A method as described in Claim 1, further comprising:

d) prior to b), filtering said image to produce an image with the same color scheme as said display and using said filtered image in said step b).

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9. A method as described in Claim 1, wherein said output display has sub-pixel control.

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10. In a system having a processor coupled to a bus, a display coupled to said bus, and a computer readable medium coupled to said bus, said computer readable medium having stored therein a computer program that when executed by said processor causes said computer system to implement a method for processing an image, said method comprising:

a) accessing said image;

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b) based on the intensity of a first color in a region of said image, calculating an intensity value for said first color to be displayed on a sub-pixel of said display, said sub-pixel corresponding to said region of said image based on a pre-determined mapping, said pre-determined mapping providing a unique region of said image for said sub-pixel, wherein said display comprises a plurality of colors;

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c) repeating b) for additional regions of said image and corresponding additional sub-pixels of said display to process additional colors of said plurality of colors; and

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d) causing said sub-pixels to display said colors, based on said calculated intensities.

11. The system of Claim 10 wherein said display screen comprises a plurality of sub-pixels per pixel, said pixel comprising all of said plurality of colors, further wherein each color within said pixel is based on a different  
5 region of said image.

12. The system of Claim 11 wherein each sub-pixel is individually controllable.

10 13. The system of Claim 11 wherein b) of said method comprises:  
b1) averaging the intensity value of said first color over a plurality of regions neighboring said region of said image, wherein each of said sub-pixels maps to its own plurality of regions.

15 14. The system of Claim 13, wherein b) of said method comprises:  
b1) based on the intensity of said first color in said plurality of regions of said image, calculating an intensity value for said first color;  
b2) calculating an error for said first color; and  
b3) propagating said error for said first color for processing further  
20 regions of said image.

15. The system of Claim 14, wherein b) of said method further comprises using in b1) an error that was propagated when calculating an intensity value for another sub-pixel for said first color.  
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16. A method of processing an image for display on an display having sub-pixel display capability, said method comprising:

a) mapping a plurality of sub-pixels of said display to corresponding regions of said image, each sub-pixel being mapped to a unique region;

5 b) accessing said image, said image sampled at a higher spatial resolution than the spatial resolution of said display;

c) for each sub-pixel, calculating an intensity value for said sub-pixel using only intensity information for a first color from said corresponding region; and

10 d) rendering said image on said display, based on said calculated intensities.

17. A method as described in Claim 16 wherein c) comprises:

15 c1) averaging the intensity value of said first color over a plurality of regions neighboring said region of said image, wherein each of said areas maps to its own plurality of regions.

18. A method as described in Claim 16, wherein c) comprises:

20 c1) based on the intensity of said first color in said region of said image, calculating an uncompensated intensity value for said first color;

c2) calculating an error for each of the rest of said plurality of colors within said region,

c3) storing said errors for said rest of said colors for processing further regions of said image; and

c4) calculating a compensated intensity value for said area, based on said uncompensated intensity value and errors which were calculated for said first color when processing other image regions.

5 19. A method as described in Claim 18, wherein c4) comprises calculating said errors for said first region when processing a region for which uncompensated values are calculated for other colors of said plurality.

20. A method as described in Claim 16, further comprising:

10 e) prior to c), filtering said image to produce an image with the same color scheme as said display and using said filtered image in b).

21. A method as described in Claim 16, wherein a) comprises:

15 a1) for each sub-pixel of said output display, mapping said sub-pixel to a region of said input image, wherein each sub-pixel corresponds to a single color and said region of said image comprises intensity information for said plurality of colors.

22. A method as described in Claim 16, wherein c) comprises:

20 c1) based on the intensity of said first color in said plurality of regions of said image, calculating an intensity value for said first color;

c2) calculating an error for said first color; and

c3) propagating said error for said first color for processing further regions of said image.

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23. A method as described in Claim 22, wherein c) further comprises using in c1) an error that was propagated when processing another area for said first color.

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